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June 13, 2008

Reference No. 038443

Karen Cibulskis Remedial Project Manager United States Environmental Protection Agency Region V 77 West Jackson Boulevard Mail Code SR-6J Chicago, IL 60604

#### Dear Karen:

Re: Responses to Comments Regarding the Landfill Gas/Soil

Vapor Investigation Letter Work Plan

South Dayton Dump and Landfill Site, Moraine, Ohio (Site)

The following letter presents the South Dayton Dump and Landfill Potentially Responsible Party Group's (PRP Group's) responses to the United States Environmental Protection Agency's (USEPA's) comments on the Landfill Gas/Soil Vapor Investigation Letter Work Plan. The comments were received by Conestoga-Rovers & Associates (CRA) on May 28, 2008. The Letter Work Plan presents the PRP Group's scope of work for a landfill gas (LFG) and soil vapor investigation at the Site. The Landfill Gas/Soil Vapor Investigation Letter Work Plan has been revised in accordance with previous USEPA Comments received in February and May 2008.

For ease of review, the USEPA's Comments are italicized followed by the appropriate response.

# **USEPA Comment 1**

The detection limits selected by CRA are very high, and are significantly higher than the PRGs for air in the QAPP, and generic soil gas criteria in EPA's vapor intrusion guidance. This will limit the usefulness of the data for chemicals that are non-detect. Also, CRA has chosen not to include napthalene in the analysis, which has been detected in Site soils at concentrations as high as  $1,100\mu g/kg$ . EPA is not requiring any changes however, since this work is not needed to support EPA's presumptive remedyfor the Site.

### Response

The PRP Group wishes to conduct this investigation to generate useful data to help address data gaps and provide information to aid in the completion of a Feasibility Study (FS). TO 15 is





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the most sensitive landfill gas sample analytical method available that has been promulgated by the USEPA. CRA has requested that the analytical laboratory specify the best detection limits possible. The laboratory's ability to achieve the best possible detection limits will be highly dependent on the presence of matrix interferences.

Naphthalene is not included on the TO-15 parameter list; however, the contract laboratory has indicated that they have internally validated the TO-15 analysis for naphthalene and can analyze naphthalene in the Summa $^{TM}$  canister samples. Accordingly, naphthalene has been added to the list of parameters. A revised copy of the laboratory Standard Operating Procedure (SOP) will be added to the Quality Assurance Project Plan (QAPP).

On May 20, 2008, the USEPA issued the "Regional Screening Levels for Chemical Contaminants at Superfund Sites" (RSLs), which represent an update of the USEPA Region 3 RiskBased Concentrations (RBCs), USEPA Region 6 Human Health Medium - Specific Screening Levels (HHMSSLs), and the Region 9 Preliminary Remediation Goals (PRGs). The RSLs do not include criteria for soil gas, rather, the accompanying User's Guide recommends the use of the criteria in the draft guidance "Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils" (Subsurface Vapor Intrusion Guidance) (USEPA, 2002). In accordance with the RSL User's Guide and Ohio Environmental Protection Agency guidance, CRA has replaced the PRGs in Table 1 with the Target Shallow Soil Gas Concentrations Corresponding to Target Indoor Air Concentrations Where the Soil Gas to Indoor Air Attenuation Factor = 0.1 in Table 2a (Risk =  $1 \times 10^{-4}$ ) of the Subsurface Vapor Intrusion Guidance. The QAPP and Table 1 of the Landfill Gas/Soil Vapor Investigation Letter Work Plan have been revised to reflect the new criteria. CRA notes that the best possible method detection limit for 1,2-dibromo-3-chloropropane is approximately two times the RSL; however, 1,2-dibromo-3-chloropropane is not a common contaminant, having been used mainly asa pesticide and to a lesser extent in the manufacture of fire retardants (ATSDR, 1992). The remaining method detection limits are less than the RSLs.

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<sup>&</sup>lt;sup>1</sup> Agency for Toxic Substances and Disease Registry (ATSDR). 1992. <u>Toxicological profile for 1,2-dibromo-3-chloropropane</u>. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service.



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#### **USEPA Comment 2**

The work proposed in this Letter Work Plan assumes the limits of the landfill are consistent with the PRP's direct contact presumptive remedy area (DC-PRA), and does not consider landfill gas/VOC impacts to on-Site buildings from landfill sources outside the PRPs' DC-PRA, as documented by UST removal reports, the Valley Asphalt drum removal, the map from the health department, air photos, the Valley Asphalt well log and soil boring logs; or from VOC-contaminated groundwater. The work proposed in this work plan will not confirm that occupants of on-Site structures are not at risk from explosive gas or non-methane VOCs. If CRA really wanted to confirm occupants of on-Site structures are not at risk from landfill gas and non-methane VOCs, the best way to do this would be to implement an appropriate landfill gas/VOC sampling plan adjacent to/underneath each on-Site structure with appropriate analytes and detection limits. However, EPA is not requiring this work since this work is not needed to support EPA's presumptive remedy for the Site. Also, although this landfill is no longer operating it is not a "closed" landfill. Additional information is needed to explain why CRA does not consider OAC 3745-76 an ARAR.

#### Response

The proposed Landfill Gas/Soil Vapor Investigation Letter Work Plan does not assume the limit of the landfill is the DC-PRA. Four of the proposed gas probes are located within the previously identified DC-PRA and will provide information with respect to LFG/soil vapor generation within known municipal waste landfill areas. The remaining sixteen gas probes are proposed for installation in areas outside the DC-PRA. Twelve of the gas probes are proposed for installation on commercial properties located on Dryden Road. In the revised Landfill Gas/Soil Vapor Investigation Letter Work Plan, CRA has adjusted the locations of the gas probes to ensure that they are closer to the buildings along Dryden Road. CRA has also added two additional gas probe locations adjacent to buildings that were located further from the originally proposed gas probe locations. CRA believes that the scope and location of the landfill gas probes has taken the closest receptors into consideration. The 12 soil gas probes are located within 50 feet of occupied structures on Dryden Road. The gas probes will provide data with respect to the potential risk to occupants of adjacent buildings from LFG and soil vapor migration from the Site.

The requirements for the explosive gas monitoring plan specified in OAC 3745-27-12 and the control of non-methane organic carbon (NMOC) emissions specified in OAC 3745-76 will be assessed once the areas where putrescible/decomposable wastes were deposited are better delineated and once it is known if there are explosive/NMOC gas issues associated with the landfill, which has been inactive for more than 30 years.



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### **USEPA Comment 3**

There may be more than one interval that should be sampled. In some areas the extent of landfill contents above the water table may be more than 30 feet. If the "most permeable zone" is below or near the bottom of the landfill it may not characterize landfill gas/VOCs from landfill sources in equal or still permeable zones that may be impacted by different source materials and are closer to receptors. However, this work is not required to support EPA's presumptive remedy for the Site.

### Response

Since LFG and soil vapor tend to migrate vertically in landfill material, they will not preferentially migrate horizontally through deeper discrete intervals of fill material at the Site unless impermeable layers are present between the discrete intervals of fill material. Based on the available Site geological data, intervals that are impermeable to soil gas have not been identified. Screening the gas probe in the shallowest, most permeable zone encountered is an effective means of attaining the objectives specified in the Landfill Gas/Soil Vapor Investigation Letter Work Plan. The selection of the shallowest, most permeable interval for gas probe screen placement will allow for the collection of LFG/soil vapor samples that are representative of the LFG/soil vapor quality in the zone where the LFG/soil vapors will most readily migrate. Further, LFG and soil vapor migration to ambient air or into a building will occur predominantly from the shallow soil horizon. The gas probe screen will be set as shallow as possible within the higher permeability stratum. In order to prevent short circuiting of ambient air into the gas probe and, consequently, dilution of LFG/soil vapor samples, the top of the gas probe screen will be installed a minimum of three feet below ground surface. The PRP Group wishes to conduct this investigation to generate useful data to help address data gaps and provide information to aid in the completion of a FS. The gas probes will provide data with respect to the potential risk to occupants of adjacent buildings from LFG and soil vapor migration from the Site and will provide information with respect to LFG/soil vapor generation within known municipal waste landfill areas.

#### **USEPA Comment 4**

CRA is only installing one gas probe at each sampling location. This will not characterize all permeable intervals at a location, and may not characterize any depth-related differences in landfill source materials at that location. There are also other reasons for sampling at additional intervals, such as sampling at intervals consistent with slab and basement foundations. However, this work is not required to support EPA's presumptive remedy for the site.



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### Response

The proposed soil gas sampling program has been established to collect and analyze LFG/soil vapor samples that are representative of soil vapor quality in the shallowest, most permeable zone in the vicinity of the probe, which is the zone where LFG and NMOC will migrate. If these soil borings encounter multiple, discrete permeable zones that appear to have vastly different soil vapor impacts based on field screening, then CRA will either consult with USEPA's field representatives and install more than one probe at that location or identify that area as potentially requiring additional characterization in later stages of investigation at the Site.

Building slabs at the Site are primarily slab on grade construction. Installation and sampling of soil gas samples within the upper three feet below the ground surface will not generate data that are representative of Site conditions as the surficial soil interval is greatly influenced by ambient air and short-circuiting of ambient air into the gas probes can occur.

#### **USEPA Comment 5**

See previous comments. The work proposed in this letter work plan assumes the limits of the landfill are consistent with the PRP's direct contact presumptive remedy area (DC-PRA), and that groundwater beneath on-Site structures is not a source of VOCs. If CRA really wanted to confirm occupants of on-Site structures were not at risk from landfill gas or non-methane VOCs, the best way to do this would be to implement an appropriate landfill gas/VOC sampling plan adjacent to/underneath each on-Site structure with appropriate analytes and detection limits.

# Response

The proposed landfill gas letter work does not assume the limit of the landfill is the PRP's DC-PRA. Five of the proposed landfill gas probes are located within the previously identified DC-PRA. The remaining thirteen gas probes are proposed for installation in areas outside the DC-PRA. Eight of these probes are proposed for installation on commercial properties located on Dryden Road. As noted above, in the revised Landfill Gas/Soil Vapor Investigation Letter Work Plan, CRA has also added two additional gas probe locations adjacent to buildings that were located further from the originally proposed gas probe locations. CRA believes that the scope and location of the landfill gas probes has taken the closest receptors into consideration. The proposed groundwater and LFG/soil vapor investigations are appropriate to characterize the potential for VOCs migration from groundwater to soil gas.



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These probes will allow invaluable information to be gathered regarding the potential for LFG to migrate to the commercial properties along Dryden Road and beyond. At present, no data exist to evaluate this issue.

#### **USEPA Comment 6**

Please add these details to the FSP. It is not clear how the most permeable interval will be selected/where the screen will be placed in areas where landfilled materials are present.

#### Response

The selection of the most permeable interval will be based on soil descriptions and characterizations using the Unified Soil Classification System (USCS). These details have been incorporated into the FSP. Where landfilled materials are present, the screen will be placed at a depth immediately above the landfilled materials. If the landfilled material extends to within three feet of the surface and it is therefore, not possible to set the screen above the landfilled material, the screen will be placed within the landfilled material.

# **USEPA Comment 7**

CRA is not conducting step rate tests to ensure soil gas representative of the formation is drawn into the soil gas probe.

# Response

It has been CRA's experience that step rate tests conducted at soil gas probes installed in permeable soils result in soil gas sampling rates that are in the liters per minute magnitude or greater. The sampling rates specified in the Landfill Gas/Soil Vapor Investigation Letter Work Plan (200 milliliters/minute or less) were established such that representative soil gas samples are collected at each location and are consistent with the rates specified in the California Environmental Protection Agency (CalEPA) publication *Advisory – Active Soil Gas Investigations* (CalEPA, 2003).



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Should you have any questions on the above, please do not hesitate to contact us.

Yours truly,

**CONESTOGA-ROVERS & ASSOCIATES** 

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